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EXAMINER	
GANTT, ALAN T	
ART UNIT	**PAPER NUMBER**
2684	

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/717,334	SOUROUR, ESSAM	
	Examiner	Art Unit	
	Alan T. Gantt	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/22/04 have been fully considered but they are not persuasive. Applicant primarily argues that:

(a) The Bruckert reference cannot perform the tasks of claim 1 in a single power control group period.

(b) The Chheda reference never mentions anything regarding Doppler frequencies and the Moriya reference never teaches how to calculate the Doppler frequency from the seed and never suggests the use Doppler frequency instead of speed.

(c) The Sorokine reference teaches nothing more than the fact that forward link power control is used in CDMA systems and is just conventional power control.

Regarding (a), the Bruckert reference does perform an estimate of the quality of signal as shown in Figure 6 and described in col. 6, line 62 to col. 7, line 35. This is an alternate embodiment than the one cited in applicant's argument. The embodiment invokes an algorithm to estimate the value of the power control bit rather than cut into the power control group measurement period and then utilize the estimation. The power control bit is determined during a fraction of the power control group period taken to send the signal from the base station to the mobile station. This power control bit from the estimation is sent back as part of the message

during the next reverse link signal. This seems to match the language of claim 1: estimating a quality of a signal transmitted from the first device to the second device and determining a PCB based on the estimation, then transmitting the PCB from the second device to the first device during the first PCG period, receiving the PCB at the first device, etc. The main concern of Bruckert is the estimating of the quality from a power control group signal and to determine the appropriate PCB as the power control group signal is being sent and add that PCB to the reverse signal in the very next assigned time slot going back to the base station. Bruckert does cut the delay significantly since it sends that PCB with the very next time slot transmission. Thus, the examiner feels that the Bruckert reference withstands the applicant's objections.

Regarding (b), although it is well known that there is a relationship between speed and Doppler frequency, the applicant feels that the speed difference is not an obvious relationship with estimating a Doppler frequency. Therefore, a new supporting reference, Kansakoski et al., is combined with Chheda to meet claims 6-9.

Regarding (c), the power control group period of Sorokine is like that of Bruckert in that there is an estimation by the mobile station of the signal quality (information bit-to-noise ratio) on the forward link at a given interval as it is received and feeding the information to the base station, the mobile station attempts to account for changing channel conditions. The base station decides to increase or decrease the power of the forward link based on the feedback provided by the mobile station on the reverse link. This estimating provides for the fast forward power control (paragraphs 0064-0067). Tiedemann is utilized in that the terminology matches that of

the applicant's invention. Therefore, the examiner feels that there is still justification for those claims rejected by these references.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bruckert et al.

Regarding claim 1, Bruckert discloses a method for controlling transmission power of signals transmitted between first and second radio communication devices, that comprises:

estimating a quality of signals transmitted from the first radio communication device to the second radio communication device during a first power control group period (col. 6, line 62 to col. 7, line 5 [the estimating of the value of the power control bit between the first terminal and the second terminal. Being the base station, and the second terminal, being the mobile station, is related to of the quality of the signal]);

determining at least one power control bit based on the estimated signal quality (col. 6, line 62 to col. 7, line 5 and col. 7, line 62 to col. 3, line 20) ;

transmitting the at least one power control bit from the second radio communication device to the first radio communication device during the first power control group period (col. 5, lines 3-59);

receiving the at least one power control bit at the first radio communication device (col. 6, lines 45-61); and

modifying transmission power of signals transmitted from the first radio communication device to the second radio communication based on the at least one power control bit at commencement of a second power control group period (col. 6, lines 45-61).

Regarding claim 2, Bruckert meets the limitation, "the method of claim 1, wherein the quality of the signals is estimated over a first time period" (col. 5, lines 41-59).

Regarding claim 3, Bruckert meets the limitation, "The method of claim 2, wherein the first time period is less than the first power control group period" (col. 5, line 60 to col. 6, line 4 [1.25 ms is taken as the power group period and T.sub.measure is less than or equal to 1.25-T.sub.adv, which will be less than the power group period in the vast majority of cases]).

Regarding claim 4, Bruckert meets the limitation, "The method of claim 3, wherein the first time period <_ T - At, where At comprises at least a reverse link propagation delay (col. 5, line 3 to col. 6, line 4 [this equation for the first time period that takes into account the reverse link propagation delay is the same as the T.sub.measure equation discussed above for claim 3).

Regarding claim 5, Bruckert meets the limitation, "The method of claim 1, wherein a first power control group associated with the first power control group period comprises a number of symbols (col. 5, lines 9-20).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chheda et al., in view of Kansakoski et al.

Regarding claim 6, Chheda discloses a method of facilitating forward link power control process that uses that uses the mobile station's speed as a decision maker for a power control process that switches between forward power control and fast forward power control (col. 2, lines 55-65).

selecting either a first process or a second process based on the estimated Doppler frequency (col. 2, lines 1-8 and 55-65); and

determining a power control bit for controlling forward link power using the selected process (col. 4, lines 18-22).

Although there are known relationships between speed and Doppler frequency, Chheda discusses speed of mobile station and does not discuss estimating a Doppler frequency.

Kansakoski discloses a forward link closes loop power control fro a third generation wideband CDMA system. Kansakoski is utilized since it performs estimation of propagation channel Doppler frequencies (col. 8, line 66 to col. 9, line 22 and col. 10, line 38 to col. 11, line 38) Kansakoski relates this aspect to performing a type of power control based on the Doppler condition (col. 4, lines 27-63).

Chheda and Kansakoski are combinable because they share a common endeavor, namely CDMA receivers that detect moving speed of mobile station. At the time of the applicant's invention it would have been obvious to modify Chheda to include a correlation between moving speed of the mobile station and a Doppler frequency as done by Kansakoski in order to allow power control in the Doppler frequency (i.e., condition) frame of reference.

Regarding claim 7, Chheda meets the limitations -The method of claim 6, wherein the first process comprises:

estimating signal quality of a forward link during a first power control group, the first power control group associated with a. first power control group period (col. 3, lines 46-50)

wherein the signal quality of the forward link is estimated over a first time period and wherein the first time period is less than the first power group period (col. 4, lines 13-32); and

determining the power control bit based on the estimated signal quality (col. 4, lines 18-22 and 39-55).

Regarding claim 8, the examiner takes Official notice that it is well known to include a reverse link propagation delay and that it would have been obvious to modify Chheda and Kansakoski to include the reverse propagation delay as this is done to determine a value of the long code for calculating the power control bit location within the next power group.

Regarding claim 9, The method of claim 6, wherein the second process comprises: estimating signal quality of a forward link during a first power control group, the first power control group associated with a first power control group period (col. 3, lines 46-50 and 51-65 [the once per frame indicates the power control bit change only once during the PCG period]),

wherein the signal quality of the forward link is estimated over a first time period and wherein the first time period is substantially equal to first power control group (col. 3, lines 46-50 and 51-65 [the once per frame indicates the power control bit change only once during the PCG period]); and

determining the power control bit based on the estimated signal quality (col. 4, lines 18-22).

5. Claims 10-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorokine, in view of Tiedemann, Jr. et al.

Regarding claim 10, Sorokine discloses a method for detecting finger merge condition in a CDMA receiver and facilitates forward link power control (paragraphs 64-67), comprising:

Sorokine includes a means of estimating signal quality of a forward link during a first power control group period (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]);

Sorokine also provides for determining at least one power control bit based on the estimated signal quality (paragraph 66 [up or down command equivalent to a power control bit]; and

Sorokine also provides for transmitting the at least one power control bit on a reverse link during the first power control group period (paragraph 67 [power up or down command conveyed to base station].

Sorokine does not utilize power control group periods or power control bit.

Tiedemann discloses a forward link power mechanism that measures the reverse link power control bits transmitted on the forward traffic channel. Tiedemann is utilized here to show that CDMA systems make use of power control group period and power control bits (col. 6, lines 22-37 and col. 1, lines 11-55).

Sorokine and Tiedemann are combinable because they share a common endeavor, namely, apparatuses for forward link power control. At the time of the applicant's invention it would have been obvious to modify Sorokine to make use of power control group period and power control bits as done by Tiedemann to be more in line with conventional definitions and terminology.

Regarding claim 15, Sorokine discloses a communication device that meets the following limitations: a signal quality estimation device that estimates signal quality of a forward link using a first power control group transmitted during a first power control group period (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]); and

a processing unit that determines at least one power control bit based on the estimated signal quality (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]);

and transmits the at least one power control bit on a reverse link during the first power control group period (paragraph 67 [power up or down command conveyed to base station]). Sorokine does not utilize power control group periods or power control bit.

Tiedemann discloses a forward link power mechanism that measures the reverse link power control bits transmitted on the forward traffic channel. Tiedemann is utilized here to show that CDMA systems make use of power control group period and power control bits (col. 6, lines 22-37 and col. 1, lines 11-55).

Sorokine and Tiedemann are combinable because they share a common endeavor, namely, apparatuses for forward link power control. At the time of the applicant's invention it would have been obvious to modify Sorokine to make use of power control group period and power control bits as done by Tiedemann to be more in line with conventional definitions and terminology.

Regarding claim 20, Sorokine discloses a technique that requires a computer readable medium containing instructions for controlling at least one processing unit to perform a method of facilitating forward link power control where the method includes the following limitations:

initiating estimation of signal quality of a forward link during a first power control group period (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]);;

determining at least one power control bit based on the estimated signal quality (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms same as first power group period for Bruckert above]); and

initiating transmission of the at least one power control bit on a reverse link during the first power control group period (paragraph 67 [power up or down command conveyed to base station]).

Sorokine does not utilize power control group periods or power control bit.

Tiedemann discloses a forward link power mechanism that measures the reverse link power control bits transmitted on the forward traffic channel. Tiedemann is utilized here to show that CDMA systems make use of power control group period and power control bits (col. 6, lines 22-37 and col. 1, lines 11-55).

Sorokine and Tiedemann are combinable because they share a common endeavor, namely, apparatuses for forward link power control. At the time of the applicant's invention it would have been obvious to modify Sorokine to make use of power control group period and power control bits as done by Tiedemann to be more in line with conventional definitions and terminology.

Regarding claim 21, Sorokine discloses a method of controlling forward link power, comprising:

estimating signal quality of a forward link during a first power control group period ((paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]));

determining at least one power control bit based on the estimated signal quality (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]);

transmitting the at least one power control bit on a reverse link during the first power control group period (paragraph 67 [power up or down command conveyed to base station]);

receiving the at least one power control bit on the reverse link (paragraph 67 [power up or down command conveyed to base station]); and

modifying forward link power based on the at least one power control bit at commencement of a second power control group period (paragraph 67 [power up or down command conveyed to base station]).

Sorokine does not utilize power control group periods or power control bit.

Tiedemann discloses a forward link power mechanism that measures the reverse link power control bits transmitted on the forward traffic channel. Tiedemann is utilized here to show that CDMA systems make use of power control group period and power control bits (col. 6, lines 22-37 and col. 1, lines 11-55).

Sorokine and Tiedemann are combinable because they share a common endeavor, namely, apparatuses for forward link power control. At the time of the applicant's invention it would have been obvious to modify Sorokine to make use of power control group period and power control bits as done by Tiedemann to be more in line with conventional definitions and terminology.

Regarding claim 26, A communication system, comprising:

a mobile terminal that estimates signal quality of a forward link during a first power control group period ((paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above])),

determines at least one power control bit based on the estimated signal quality (paragraph 65 [estimating the received Eb/Nt during a given interval typically 1.25 ms-same as first power group period for Bruckert above]),

transmits the at least one power control bit on a reverse link during the first power control group period (paragraph 67 [power up or down command conveyed to base station]) and

a base station that receives the at least one power control bit on the reverse link(paragraph 67 [power up or down command conveyed to base station]), and

modifies forward link power based on the at least one power control bit at commencement of a second power control group period (paragraph 67 [power up or down command conveyed to base station]).

Sorokine does not utilize power control group periods or power control bit.

Tiedemann discloses a forward link power mechanism that measures the reverse link power control bits transmitted on the forward traffic channel. Tiedemann is utilized here to show that CDMA systems make use of power control group period and power control bits (col. 6, lines 22-37 and col. 1, lines 11-55).

Sorokine and Tiedemann are combinable because they share a common endeavor, namely, apparatuses for forward link power control. At the time of the applicant's invention it would have been obvious to modify Sorokine to make use of power control group period and power control bits as done by Tiedemann to be more in line with conventional definitions and terminology.

Regarding claims 11, 16, 22, and 27, Sorokine meets the limitation, "wherein the signal quality of the forward link is estimated over a first time period" (paragraph 65).

Regarding claims 12, 17, 23, and 28, Sorokine meets the limitation, "wherein the first time period is less than the first power control group period (Sorokine suggests this limitation since the estimation of the received Eb/Nt occurs during the interval of length 1.25 ms-the length of a power control period-paragraph 65) .

Regarding claims 13, 18, 24, and 29, Tiedemann meets the limitation, "wherein the first time period test, <- T, - At , where At comprises at least a reverse link propagation delay (col. 15, lines 21-37).

Regarding claims 11, 17, 22, and 27, Tiedemann meets the limitation, "wherein a first power control group associated with the first power control group period comprises a number of symbols (col. 6, lines 46-65).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication from the examiner should be addressed to Alan Gantt at telephone number (703) 305-0077. The examiner can normally be reached between 9:30 AM and 6 PM within the Eastern Time Zone. The group FAX number is (703) 872-9306.

Any inquiry of a general nature or relating to this application should be directed to the group receptionist at telephone number (703) 305-4700.

Alan T. Gantt

Alan T. Gantt

June 24, 2004

NAY MAUNG
SUPERVISORY PATENT EXAMINER